

City of Renton Shoreline Master Program Update Restoration Plan



Prepared for

City of Renton
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ACRONYMS

BRWA	Black River Watershed Alliance
DNR	Department of Natural Resources
DO	dissolved oxygen
ERP	Ecosystem Restoration Project
FCRW	Friends of the Cedar River Watershed
KCD	King Conservation District
LOS	level of service
LWD	Large Woody Debris
KCFCZD	King County Food Control Zone District
NPDES	National Pollutant Discharge Elimination System
RCW	Revised Code of Washington
RM	River Mile
SMA	Shoreline Management Act
SMP	Shoreline Management Plan
UGA	Urban Growth Areas
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WSDOT	Washington State Department of Transportation

1. INTRODUCTION

1.1 REPORT PURPOSE

The City of Renton's Shoreline Master Program (SMP) applies to activities and uses within its shoreline zone. Activities which produce adverse impacts on shoreline ecological functions must have mitigation for those impacts to assure no net loss of shoreline ecological functions. By law, development within the shoreline zone is not required to improve the affected shoreline beyond the baseline condition at the time the activity takes place. How then can shoreline ecological functions be improved over time in areas where the baseline condition is marginally, or even severely, degraded?

Section 173-26-201(2)(f) Washington Administrative Code (WAC) of the SMP Guidelines says:

Master programs shall include goals and policies that provide for restoration of such impaired ecological functions. These master program provisions shall identify existing policies and programs that contribute to planned restoration goals and identify any additional policies and programs that local government will implement to achieve its goals. These master program elements regarding restoration should make real and meaningful use of established or funded non-regulatory policies and programs that contribute to restoration of ecological functions, and should appropriately consider the direct or indirect effects of other regulatory or non-regulatory programs under other local, state, and federal laws, as well as any restoration effects that may flow indirectly from shoreline development regulations and mitigation standards.

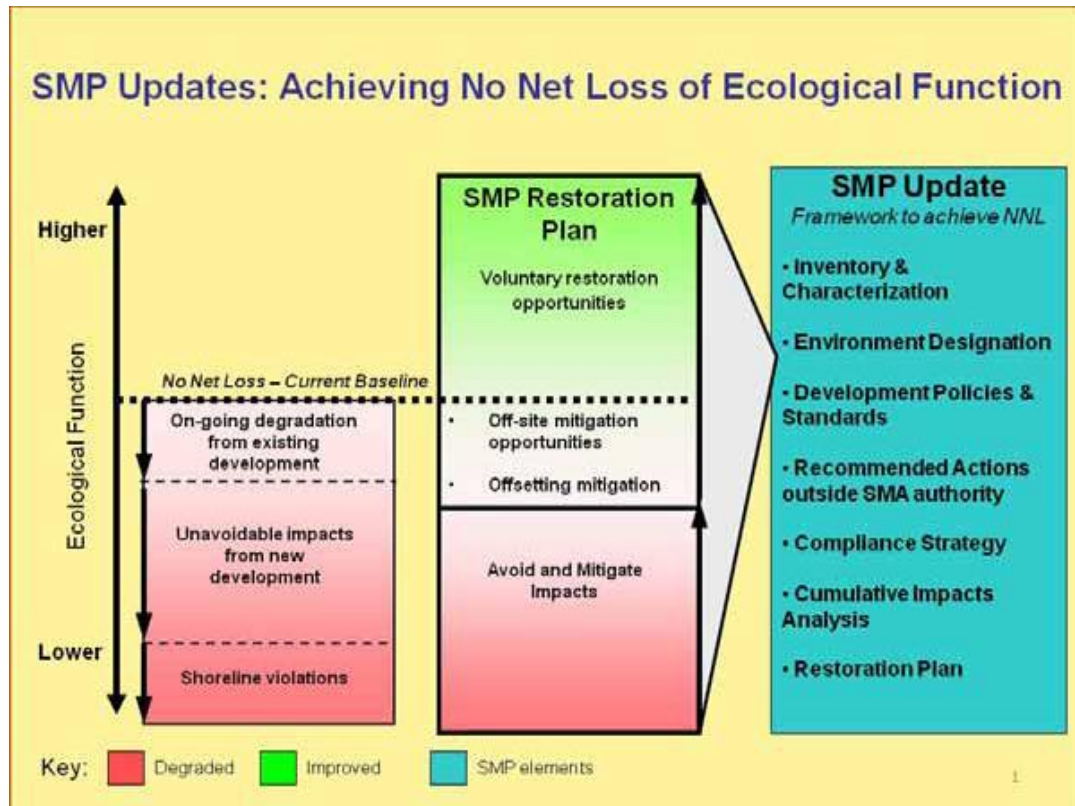
However, degraded shorelines are not exclusively a result of pre-SMP activities, but also of unregulated activities and exempt development. The new Guidelines also require that "Local master programs shall include regulations ensuring that exempt development in the aggregate will not cause a net loss of ecological functions of the shoreline" (173-26-186(8)(b)(ii) WAC). While some actions within shoreline jurisdiction are exempt from a permit, the SMP should hold that permit exempt developments must still comply with the Shoreline Management Act (SMA) or the local SMP. Because the shoreline environment is also affected by activities taking place outside of a specific local master program's jurisdiction (e.g., shoreline areas upstream of the City and otherwise outside of City limits), assembly of interlocal agreements, forums, programs, and policies can be essential for understanding how the City fits into the larger watershed framework. Watershed-wide goals and objectives are critical for the improvement of highly interconnected regional environments.

As indicated by the Guidelines, the following discussion provides a summary of existing or baseline shoreline conditions, lists restoration objectives both regionally and locally, evaluates ongoing programs and restoration projects, and provides potential restoration opportunities within the City of Renton. Lastly, implementation of restoration goals and monitoring development of ecological functions over time will allow the City's Restoration Plan to meet SMP Guidelines.

This Restoration Plan is also intended to support grant funding of restoration projects by the City and/or other non-governmental organizations as well as provide the interested public with contact information for organizations working with the City to enhance the environment.

The difference between the role of regulatory and non-regulatory programs in achieving no net loss is illustrated in conceptual form in Figure 1-1, below. Generally speaking, regulations that address development projects are designed to achieve no net loss. However,

there are exceptions to this. For example, non-water-dependent uses are required to provide public benefit in the form of public access and/or ecological restoration as addressed in WAC 173-26-241(3)(d). In general, however, restoration activities undertaken by public, private, and non-profit organizations in accordance with this plan, and other programs are expected to provide the primary source of improvements to ecological functions.



Source: Washington Department of Ecology

Figure 1-1. Role of the Restoration Plan in the SMP Update

1.2 CITY OF RENTON CONTEXT

City of Renton is located within the Lake Washington/Cedar River (Water Resource Inventory Area [WRIA] 8) and the Green/Duwamish River (WRIA 9) watersheds.

WRIA 8 encompasses 692 square miles (Kerwin 2001) and two major subbasins, the Sammamish River and the Cedar River, both of which flow into Lake Washington. WRIA 8 boundaries follow topographic divides between WRIA 7 (Snohomish River) to the north and east, and WRIA 9 (Green/Duwamish Rivers) and Puget Sound to the south and west (Kerwin 2001). The majority (approximately 86 percent) of WRIA 8 is in the Puget Lowlands physiographic region. The upper Sammamish drainage lies in the Cascade foothills, while the upper Cedar River drainage extends through the foothills into the Cascade Mountains. WRIA 8 has a population of about 1.5 million people, the most of any WRIA in the state.

WRIA 9 contains the Green River and its tributaries, including the Duwamish waterway/estuary, and nearby tributaries draining directly to Puget Sound. WRIA 9 is bound topographically by WRIA 8 (Lake Washington/Cedar River) to the north and WRIA 10 (Puyallup River) to the south. The Green River watershed is 462 square miles, and the river

itself stretches 93 miles from its source in the Cascade Mountains through the Cascade foothills and Puget Lowlands before emptying into Puget Sound at Elliott Bay. The population of WRIA 9 is approximately 565,000.

The City accounts for less than three percent of the geographical area and its population (80,708) is less than a half of one percent of the population of about two million within WRIAs 8 and 9. The City is also located near the lower end of both WRIAs. Hence, management actions taken within the City limits have a limited effect on overall watershed conditions. However, actions taken to manage reach-scale processes, such as riparian and floodplain functions, could have a larger effect on specific ecological processes and functions, particularly rearing functions of anadromous fish.

The City also lies in the lower portion of May Creek and Springbrook Creek but accounts for a much larger proportion of the total watershed area. As such, management actions for these shorelines conducted within the City may have a more substantial effect on overall watershed conditions and shoreline ecological functions.

1.3 SHORELINE INVENTORY

1.3.1 Introduction

The *Shoreline Inventory and Analysis Report* as part of the City of Renton's SMP will facilitate the City of Renton's compliance with the State of Washington's SMA and updated SMP Guidelines. The inventory describes existing physical and biological conditions in the shoreline area within City limits, including recommendations for restoration of ecological functions where they are degraded. A brief summary of the *Shoreline Inventory and Analysis Report* relevant to the Restoration Plan is summarized below.

1.3.2 Shoreline Jurisdiction

The City's jurisdiction includes area in both WRIAs, the Green/Duwamish Watershed or WRIA 9 and the Lake Washington/Cedar/Sammamish Watershed or WRIA 8. For organizational purposes, shorelines in WRIAs 8 and 9 will be broken into two sections for analysis within this Restoration Plan. In WRIA 8, significant shorelines include Lake Washington, Cedar River, and May Creek titled as Cedar River/Lake Washington. In WRIA 9, significant shorelines include Green River and Springbrook Creek titled as Green River/Springbrook Creek.

As defined by the Shoreline Management Act of 1971, shorelines include certain waters of the state plus their associated "shorelands." Shorelands are defined as:

Those lands extending landward for 200 feet in all directions as measured on a horizontal plane from the ordinary high water mark; floodways and contiguous floodplain areas landward 200 feet from such floodways; and all wetlands and river deltas associated with the streams, lakes, and tidal waters which are subject to the provisions of this chapter...Any county or city may determine that portion of a one-hundred-year-floodplain to be included in its master program as long as such portion includes, as a minimum, the floodway and the adjacent land extending landward two hundred feet therefrom. (RCW 90.58.030)

1.3.3 Cedar River/Lake Washington Watershed

The Lake Washington basin covers most of the 692 square miles contained in WRIA 8 and is populated with approximately 1.4 million people (Kerwin 2001). The City lies at the south end of Lake Washington and contains approximately 21 square miles, or three percent, of the

total watershed and less than one-half percent of the total watershed population. Lake Washington has 80 miles of shoreline, about six of which are within the Renton planning area, or about eight percent.

The Cedar River Watershed drains an area of 191 square miles, 125 square miles of which lie upstream of the City of Seattle drinking water diversion. The upper watershed is mostly second growth forest, but 16 percent of it is climax, old-growth forest. Most impervious surface in the watershed occurs in its lower, urbanized portions. The Lower Cedar River basin is primarily (90 percent) within the jurisdictional boundary of King County. The remaining jurisdictional area is within the cities of Renton (7.8 percent), Maple Valley (2.1 percent), and Kent (0.8 percent; King County 2009).

The May Creek watershed is about 8,960 acres in Renton, Newcastle, and unincorporated King County, and includes 26 miles of mapped streams, two small lakes, and over 400 acres of wetlands. The portion of the Creek in Renton includes 2.3 stream miles of shoreline planning area partitioned into four reaches. The Creek is an important salmonid stream and contains a substantial amount of protected shoreline.

1.3.3.1 Land Use

Land use areas within this section include the Lake Washington basin, Cedar River, and May Creek Watersheds.

According to King County Assessor's (2008) parcel data, City land-use along the Lake's shoreline is a mix of residential, industrial, parks, recreation and open space, and vacant areas with vacant land and low-density residential development representing the dominant land uses.

Thirteen of the 187 City parcels along the Lake's shoreline are either unmodified or restored including one single-family residential property on Reach E and Gene Coulon Park on Reaches F and G. Gene Coulon Park contains a combination of restored shoreline, vegetated shoreline, and some armored shoreline. Kenneydale Beach Park (Reach D) contains a combination of modified and natural shoreline. The remaining 174 City parcels contain some level of "hard" armoring. This includes major commercial/industrial parcels (e.g., the Renton Boeing Plant) and private residential properties with hard armoring, moderate armoring, natural shoreline, or a combination thereof. Parcels that are completely armored with concrete bulkheads, rocks, or similar structures comprise 67 percent of the Lake Washington shoreline. The majority of these parcels occur in Reaches D, E, and K, which are developed for single or single/multi-family residential use. Losses of wetland and shoreline vegetation in the Lake is likely attributable to filling and shoreline development (Grassley 2000).

City land-use along the Cedar River shoreline is composed of a mix of residential, parks, recreation and open space, government/institutional, roadway and undeveloped lands. As a result of human development within and upstream the city, 64 percent of the lower Cedar River is modified on at least one bank, a condition which, in conjunction with decreased flows, has artificially narrowed the river's historic average width of approximately 250 feet to 110 feet. This alteration has resulted in a 56 percent reduction in water surface area, corresponding to a loss in available instream aquatic habitat (Kerwin 2001). Channelization and the disconnection of the Cedar River floodplain for flood control have affected storage of water, sediment, and contaminants, simplifying instream habitat.

Land-use patterns along the shoreline of May Creek are a mix of parks, recreation and open space, undeveloped lands, and residential. The upper, eastern portion of the basin is characterized by less dense residential and agricultural development, and includes a significant portion of the undeveloped parkland on Cougar Mountain. Above May Canyon, the Creek lies in a formerly dredged, straightened channel at the center of a wide, very low-

gradient valley. The lower, western portion of the basin is inside the Urban Growth Area (UGA; primarily within the jurisdiction of the Cities of Renton and Newcastle) is fairly dense urban residential development. About 50 percent of the basin is forested, but the amount of urban development is increasing (Kerwin 2001).

1.3.3.2 Nearshore and Riparian Habitat

Nearshore and riparian habitat along the Lake Washington shoreline is severely altered in nearly every reach, within the City of Renton and outside of the City limits. Residential and commercial development, including bulkheads, docks, paved areas, and landscaped yards have adversely modified most of the Lake Washington shoreline habitat. However, many of these shoreline areas continue to provide shallow water habitat at the toe of bulkheads, and some locations that do not have bulkheads. Narrow docks perpendicular to the shorelines do not appear to impede shoreline migration of young Chinook, but the fish appear to migrate around wider structures where they occur in shallow water (less than three feet deep).

Deeper nearshore habitats with rocky substrates and without vegetation appear to be preferred by smallmouth and largemouth bass. These bass may also be keying in on overwater coverage and pilings as ambush habitat. Because there is an abundance of these habitat types in the shoreline, predation opportunities that would not exist historically are likely increasing today (Kahler 2000).

Shallow water habitat along these shorelines provides important rearing habitat for juvenile Chinook as they slowly migrate from the Cedar River and rear along Lake Washington's shorelines. Those areas closest to the River are most important for this rearing function because the smallest Chinook use gently sloping, shallow shorelines for weeks to months as they gradually move away from the river mouth. Although riparian vegetation increases the refuge and prey production functions for this habitat, the shallow beaches support rearing juvenile Chinook in the absence of natural riparian vegetation (Tabor 2008).

The continuing cumulative adverse effects of bulkheads and the lack of native vegetation on near-shore processes important to a variety of aquatic species including substrate character, interflow, shallow water temperature, and the food web may be reduced in the future by the recent proposal by the Department of Natural Resources (DNR) to remove the sheet-pile outfall structure and restore the nearshore as part of an aquatic restoration program (DNR 2009) and by expansion of the Cedar River delta.

The Cedar River downstream of I-405 is an artificial channel created early in the 20th century, and is completely constrained between levees and revetments. These reaches were regularly dredged to prevent flooding from their completion in 1912 until the mid-1970s. Portions of the reaches were again dredged in 1999 for the first time since the mid-1970s. Instream habitat in these reaches is almost entirely riffle, with little habitat complexity. Land-uses prevent floodplain connectivity and have eliminated the potential for re-connection with a natural floodplain or the establishment of a riparian corridor. Channelization and existing land-uses also prevent significant large woody debris (LWD) from accumulating in the channel. Reaches A and B are also very low-gradient and depositional, and the substrates have high levels of fine sediments.

The reach between I-405 and SR 169 has a higher degree of function than downstream reaches although it is partially diked, leveed, and bulkheaded with extensive alternation on the north side (right bank) from past commercial multi-family and single family development. The south side (left bank) is almost entirely in public ownership with relatively heavy riparian vegetation, although there are some flood control revetments on the south side. The Maplewood residential neighborhood on the north side (right bank) immediately downstream of SR 169 is subject to shallow flooding in a 100-year event. In addition, an active landslide

scarp is located directly across the river from the neighborhood. The occurrence of a major landslide would block all or a portion of the channel suddenly and could force river flows across the residential area with potentially devastating results. The King County flood management plan proposes voluntary buy-out of this area since there is no reliable means to reduce long term landslide hazard.

The reach upstream of SR 169 is less constrained, allowing for the development of gravel bars and a very small degree of meandering and channel migration. At present, Reach D has a significant amount of LWD due to the landslide caused by the Nisqually Earthquake in 2001. This includes log-jams behind the Ron Regis Park, just upstream of the Elliott Spawning Channel. Most of the left bank of Reach C is deciduous forest, and the portion of Reach D adjacent to the golf course and Ron Regis Park is deciduous forest. These forested areas are generally at least 200 feet in width.

The Cedar River and May Creek delta provides a large amount of rapidly-developing, natural shallow water habitat in Lake Washington. In the past, the mouth of the River was periodically dredged for flood control. The City has no plans to dredge the delta in the future for flood control (Straka 2008). However, some dredging for the Municipal Airport float plane dock is proposed in order to restore water depths. Dredging at the mouth of May Creek was previously performed to accommodate log storage for the Barbee Mill sawmill. The natural processes at the delta have not yet developed any areas of sufficient elevation to support riparian vegetation, but they have created a large amount of shallow water habitat where young Chinook first enter the lake. Further natural expansion of the delta is likely to eventually prove a very productive complex of shallow aquatic habitat, wetlands, and uplands that together will provide for the transition between the river and lake environment that is critical to a number of species, including salmon. The May Creek Basin Action Plan supports enhancement of that delta in the policy:

In the event that the mill property on the May Creek Delta redevelops in the future, opportunities to enhance May Creek habitat and reduce the need for maintenance dredging should be explored. Although a feasibility study of this option has not been undertaken, it is possible that modifying the May Creek channel could reduce the need for maintenance dredging and provide a unique opportunity to establish an improved habitat area within the lakeshore commercial area, allowing the realization of environmental and economic benefits.

1.3.4 Green River/Springbrook Creek

1.3.4.1 Shoreline Inventory

The Green River Watershed covers an area of 566 square miles, a small portion of which falls within Renton's jurisdiction. At approximately river mile (RM) 11, the Green River passes to the west of the City of Renton. None of the river channel lies within City limits, but some floodway and jurisdictional shoreline as well as significant portions of tributary basins such as the Black River/Springbrook Creek are located within City limits. Springbrook Creek is the largest subbasin in the lower Green River Basin, with a watershed area of about 15,763 acres (24.6 square miles). The creek is 12 miles long including 3.5 miles within the City.

1.3.4.2 Land Use

The lower Green River Subwatershed contains a mix of agricultural, industrial, commercial, parks/recreation/open space, roadways, and residential land uses (WRIA 9). Levees and/or revetments have been constructed along the majority of the Green River to increase bank strength and reduce flooding. Flows within the Green River have been significantly modified after the construction of Howard A. Hansen Dam and installation of water diversions. These

modifications have considerably reduced the severity of floods that historically covered much of the valley bottom. Current conditions of the Lower Green River levee and revetment system is a growing source of concern for King County and jurisdictions involved, as many of the levees are aging and would not meet current standards for either flood conveyance or stability.

Springbrook Creek is the largest subbasin in the lower Green River Basin, with a watershed area of about 15,763 acres (24.6 square miles). The basin is composed of two distinct physical settings. In the eastern half of the subbasin, rolling hills rise to elevations of about 525 feet above the valley floor. The western half of the basin is virtually flat.

All of Springbrook Creek in the City was extensively modified and straightened for agricultural drainage in the 1920s by King County Drainage District No. 1, which owns the Springbrook Creek right-of-way. The channel area from the Black River Pump Station, including Forebay area up to the Oakesdale bridge crossing just upstream of Southwest 16th Street, was improved in the 1980s and 1990s for flood control by the City in cooperation with the Natural Resource Conservation Service (formerly the Soil Conservation Service; Straka 2008).

The pump station prevents high flows in the Green River from backing up into Springbrook Creek, reducing the risk of flooding. The pump station is a barrier to salmonids upstream and downstream during certain seasons, and is in need of replacement to avoid obstructing fish passage (Kerwin and Nelson 2000).

Instream habitat in the Springbrook Creek shoreline is extremely uniform and virtually identical across reaches. The Black River Basin plan (City of Renton 1993) notes that under present conditions the lack of suitable spawning habitat and questionable rearing capacity due to degraded water quality, especially high temperatures during warm summer months, provides little usable fish habitat (Kerwin and Nelson 2000). These limiting conditions remain today. The stream is constrained and channelized throughout the shoreline. The stream gradient is very flat, sinuosity is very low, and the stream has been almost completely straightened in Reach C, reducing channel surface area (usable habitat) thereby limiting habitat creation.

Reach A has been impounded by the Black River flood control structure, and much of the reach is contained in a large pond that is prone to increased temperature and corresponding low dissolved oxygen (DO). Temperature may present a barrier for migrating salmonids. Impaired temperature and DO have degraded salmonid rearing and, in upstream reaches, have inhibited incubation. The Black River Pumping Station can act as a barrier to migration of juvenile and adult salmonids due to inadequate screening, fishway design, and operation schedule (Kerwin and Nelson 2001). The riparian corridor in this reach is primarily forested and more than 250-feet-wide on either bank. However, invasive reed canarygrass is also dominant in areas, particularly on the river's left shoreline where public access and a trail system exist.

The Black River lagoon is a large, open water and forested wetland. Another wetland complex can be found downstream surrounding the Springbrook and Panther Creek confluence. A wetland area has been preserved as part of the Longacres Business Park. The Washington State Department of Transportation (WSDOT) and the City implemented a joint, multi-site wetland mitigation bank that includes 130 acres of wetland restoration, rehabilitation, and enhancement (WSDOT 2008).

1.3.5 LAKE DESIRE

Lake Desire is comprised of mixed and deciduous forest interspersed with residential lots. Along the north and southeast reaches of the lake's shoreline are natural areas; the entire shoreline has medium-high ecological function for LWD quality.

Biological function is affected by residential development along the Lake Desire shoreline, but significant areas of open space exist along the north and southeast lakeshore. These areas provide important habitat and other ecological functions enhanced by their place in a larger network of natural areas. Contiguous parks and protected areas include Lake Desire Natural Area, McGarvey Park Open Space, and Petrovisky Park. These conditions help the Lake Desire shoreline sustain a high level of ecological function

Lake Desire is fed by two small tributaries, one each on the western and northern shoreline (see Map 3a). Both streams are rated in City critical areas regulations as ephemeral and non-salmonid bearing. The northern tributary flows past a wetland just upstream of its mouth. The northern wetland and stream delta are a unique hemlock-forested peatland, a highly sensitive Category I wetland (Lower Cedar River #15 in the King County Wetland Inventory) that is one of few remaining in the urbanizing Puget Sound lowlands (King Co. 1993). An area of hydric soil to the south of the Lake may be evidence of a historical wetland. Other wetlands may occur in the area that have not yet been identified or mapped.

No priority habitats are found within the Lake Desire shoreline, nor is the Lake accessible to anadromous salmonids (see Map 5a). Lake Desire has historically been stocked with non-native rainbow trout, yellow perch, pumpkinseed sunfish and largemouth bass, which all still inhabit the Lake.

Lake Desire-Spring Lake Park serves as a wildlife corridor between the two lakes. Contiguous natural upland areas ring Lake Desire to the east, north, and west, but residential development along the lakeshore presents a barrier to wildlife movement to and from the lake.

Nearshore habitat is impacted seasonally by increased phosphorus loads that cause algal blooms. In addition, the invasive Eurasian milfoil has established itself in the Lake. Both conditions alter natural habitat conditions and limit access to important shallow-water habitat.

1.3.6 Built Environment

1.3.6.1 Existing and Planned Land-Use

Existing Land-Use

Land-use patterns along the shoreline of Lake Desire are a mix of low density residential (59 percent) and undeveloped lands (35 percent). Existing land-use was assessed using 2008 King County Assessor's parcel data.

Planned Land-Use

The City's Comprehensive Plan and zoning land-use designations in the Lake Desire shoreline planning area are low density residential (City of Renton 2008).

2. WATERSHED RESTORATION GOALS AND OBJECTIVES

2.1 PUGET SOUND PARTNERSHIP

In response to the challenges facing the Sound, in 2007 the Legislature created the Puget Sound Partnership to reverse Puget Sound's decline and restore it to health by 2020. This agency replaced the Puget Sound Action Team created in 1996, to protect and restore Puget Sound and its spectacular diversity of life now and for future generations. The Partnership has developed the following priorities in its Action Plan:

- Priority A:** Protect the intact ecosystem processes, structures, and functions that sustain Puget Sound. Avoiding problems before they occur is the best and most cost-effective approach to ecosystem health.
- Priority B:** Restore the ecosystem processes, structures, and functions that sustain Puget Sound. Protecting what we have left is not sufficient, and significant effort at an unprecedented scale is needed to undo past damage.
- Priority C:** Prevent water pollution at its source. Many of the Partnership's efforts have focused on cleaning up degraded waters and sediments, but insufficient resources have been devoted to stopping pollutants before they reach our rivers, beaches, and species.
- Priority D:** Work together as a coordinated system to ensure that activities and funding are focused on the most urgent and important problems facing the region. Many of the programs and laws now used to regulate or support activities in Puget Sound were established on a piecemeal basis to address individual problems. Strategies that will help to address problems more effectively at an ecosystem scale include improved coordination of land use planning, water supply, ecosystem protection, transportation, and species recovery plans. The Action Agenda calls for the reform of environmental regulatory programs as well as improvements to the capacity of local partners to implement actions and compliance efforts across Puget Sound.
- Priority E:** Build an implementation, monitoring, and accountability management system.

2.2 LAKE WASHINGTON/CEDAR RIVER (WRIA 8) SYSTEM-WIDE PRIORITIES

According to the *Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Near-Term Action Agenda for Salmon Habitat Conservation*, Lake Washington suffers from “[a]ltered trophic interactions (predation, competition), degradation of riparian shoreline conditions, altered hydrology, invasive plant species, poor water quality (phosphorus, alkalinity, pH), [and] poor sediment quality” (WRIA 8 Steering Committee 2002). The *WRIA 8 Action Agenda* established four “ecosystem objectives,” which are intended to guide development and prioritization of restoration actions and strategies. The objectives are as follows:

- a. “Maintain, restore, or enhance watershed processes that create habitat characteristics favorable to salmon.
- b. Maintain or enhance habitat required by salmon during all life stages and maintain functional corridors linking these habitats.

- c. Maintain a well-dispersed network of high-quality refuge habitats to serve as centers of population expansion.
- d. Maintain connectivity between high-quality habitats to allow for population expansion into recovered habitat as degraded systems recover.”

2.2.1 Cedar River/Lake Washington Objectives

Results from the *WRIA 8 Chinook Salmon Conservation Plan* as well as the *Cedar River Basin Plan* supports lower Cedar River and Lake Washington basin goals and objectives. These objectives aim to:

2.2.1.1 Lake Washington

- Increase native vegetation quality, width, and diversity in protected riparian corridors adjacent to stream and lake habitats to provide safe migration pathways for fish and wildlife, along with food, nest sites, shade, and organic debris.
- Decrease frequency and impact of overwater and in-water structures through minimization of structure size and use of innovative materials such as grated decking.
- Participate in lake-wide efforts to reduce invasive aquatic vegetation along lake shorelines.
- Protect and Restore water quality within tributary streams.
- Where feasible, improve riparian health along shorelines by removing bulkheads and using bioengineering or other soft shoreline stabilization techniques to improve aquatic conditions.
- Reconnect and rehabilitate small creek mouths along lake banks as juvenile rearing areas.

2.2.1.2 Cedar River

Flood Damage Reduction

- *Modify Levees and Revetments* in selected areas to reduce public maintenance costs, restore natural flood storage and help reduce flood damage system-wide.
- *Re-establish Channel Capacity of the Renton Reach* to 100-year flood discharge in order to reduce flood damages.
- *Voluntary Flood Buyouts of Residences* at locations along the mainstem to reduce flood damage and danger to residents where the most hazardous flood flows occur.
- *Provide Technical Assistance and Limited Financial Assistance* to help floodplain residents and responsible agencies reduce flood damages in the less hazardous areas and improve flood emergency communications.

Aquatic Habitat

- *Purchase Critical Habitat Sites* as part of the King County Open Space Program.
- *Restore and Enhance Aquatic Habitat* at 70 mainstem and 14 tributary sites with volunteer labor recruited for the smaller scale, labor intensive projects.

Water Quality and Groundwater Protection

- *Purchase Critical Habitat Sites* at 13 mainstem and 11 tributary sites as part of the King County Open Space Program.
- *Restore and Enhance Aquatic Habitat* at 70 mainstem and 14 tributary sites with volunteer labor recruited for the smaller scale, labor intensive projects.
- *Promote Forest Retention* using incentives for landowners to keep their land in forest uses such as tax relief and increased technical assistance.
- *Protect Steep Ravines and Slopes of the Cedar River* to prevent erosive runoff from new development through a combination of infiltration and enhanced retention/detention facilities.

2.2.2 Cedar River/Lake Washington Restoration Projects

Fifteen potential projects roughly within Renton's Jurisdiction are identified in the *Final Lake Washington/Cedar/Sammamish/ Watershed (WRIA 8) Chinook Salmon Conservation Plan*. The following are *Conservation Plan* site-specific Protection and Restoration projects for Lake Washington and the Cedar River respectively:

- C266 Section 1, South Lake Washington near Cedar River Mouth (Reach H-I): Shoreline Restoration of DNR Property as part of City's Sam Chisham Trail project. Remove a portion of flume (along lakeside), create shallow water habitat, protect existing cove, and plant overhanging riparian vegetation along cove.
- C267 Section 1, South Lake Washington near Cedar River Mouth (Reach H-I): Shoreline restoration between mouth of Cedar River and Gene Coulon Park; explore options with private property owners to remove bulkheads, restore shallow water habitat, and riparian vegetation.
- C268 Section 1, South Lake Washington near Cedar River Mouth (Reach J, Cedar River Reach A): Explore lowering/modifying Cedar River Delta to create more shallow water habitat, reduce bird predation for juvenile salmon by cutting trees lower.
- C269 Section 1, South Lake Washington west of Cedar River Mouth (Reach K): Explore options with homeowners to remove bulkheads, conversion of nearshore habitat to shallow beach and restore riparian vegetation. Reduce number of docks by using community docks.
- C270 Section 1, South Lake Washington near Cedar River Mouth (Reach K, D, B-A): Explore opportunities to restore small creek mouths; remove bulkheads and reduce number of docks by developing community docks throughout section 1.
- C264 Section 1, South Lake Washington within Gene Coulon Park (Reach G): Enhance mouth of Lower John's Creek; enhance lower channel to reduce predator habitat, restore riparian vegetation, and protect water quality and quantity from stormwater flows.
- C265 Section 1, South Lake Washington within Gene Coulon Park (Reach F): Enhance mouth of Kennydale Creek, remove silt, and facilitate recruitment of sand and gravel. Protect existing shallow water delta.
- C203, C204 Logan St. Bridge to I-405 (Cedar River Reach B, RM 1-1.6): Explore options to add native riparian vegetation on left bank of river and for any needed restoration plantings on the right bank. If redevelopment occurs in this reach of river, explore possibility of setting back levees and restoring riparian buffer.

- C206 I-405 to SR 169 Bridge (Reach C, RM 1.6-4.2): Riparian restoration on right bank of industrial use area likely to be redeveloped in the near future, improve riparian habitat via easement purchase for buffer and removing bank hardening.
- C207 I-405 to SR 169 Bridge (Reach C, RM 1.6-4.2): There is multifamily residential use on the right bank of the river; explore opportunities to remove impervious surface area and bank hardening on site, restore riparian buffer.
- C208 I-405 to SR 169 Bridge (Reach C, RM 1.6-4.2): Maplewood neighborhood flood buyouts and floodplain restoration, explore options to restore floodplain.
- C211 SR 169 Bridge to Upstream of Landslide (Reach D, RM 4.2-4.7): The Cedar River Basin Plan includes a potential project to restore a side channel on the right bank of the river on property owned by Maplewood Height Home Owners Association and the City across from the golf course and downstream the landslide. Channel restoration should include a flow-through channel reconnected to the Cedar at upper end for juvenile Chinook benefit.
- C212 SR 169 Bridge to Upstream of Landslide (Reach D, RM 4.2-4.7): Conifer under-planting within reach, particularly in Ron Regis Park near slide area.
- C213, C214 SR 169 Bridge to Upstream of Landslide (Reach D, RM 4.7): Protect existing riparian habitat and extensive LWD in reach. Explore using LWD and levee setback to prevent excessive erosion and flood damage to public lands associated with Ron Regis Park while protecting natural habitat forming processes. Project study should include lower Madsen Creek.

2.3 DUWAMISH/GREEN RIVER (WRIA 9) SYSTEM-WIDE PRIORITIES

According to the *Green/Duwamish and Central Puget Sound Watershed (WRIA 9) Near-Term Action Agenda For Salmon Habitat Conservation*, the Green/Duwamish watershed suffers from detrimental conditions for fish and fish habitat due to land use changes which have resulted in direct and indirect impacts to salmon habitat, major engineering changes to shoreline environments, and water quality which has declined due to wastewater and industrial discharges, stormwater runoff, failing septic systems and the use of pesticides (WRIA 9 Steering Committee 2002). The *WRIA 9 Near-Term Action Agenda* established three high priority watershed goals for salmon conservation and recovery:

- “Protect currently functioning habitat primarily in the Middle Green River watershed and the nearshore areas of Vashon/Maury Island.
- Ensure adequate juvenile salmon survival in the Lower Green River, Elliot Bay/Duwamish, and Nearshore subwatersheds. Meeting this goal involves several types of actions, including protecting currently functioning habitat, restoring degraded habitat, and maintaining or restoring adequate water quality and flows.
- Restore access for salmon (efficient and safe passage for adults and juveniles) to and from the Upper Green River subwatershed.”

2.3.1 Lower Green River

The following habitat management strategies for the Lower Green River subwatershed, including Renton, are also taken from the *Salmon Habitat Plan: Making our Watershed Fit for a King* (Steering Committee 2005):

- In the Lower Green River, every opportunity should be taken to set back levees and revetments to the maximum extent practicable.

- Habitat rehabilitation within the Lower Green River corridor should be included in all new developments and re-developments that occur within 200 feet of the river. Rehabilitation includes:
 - Installation of LWD
 - Control of invasive weeds and replanting of native vegetation
 - Introduction of spawning gravel in the Green River Mainstem
- Protect and restore side channels, off-channel wetlands, tributary mouths, and pools that provide shelter and habitat complexity for young salmon.
- Protect and restore natural sediment movement by reconnecting sediment sources to the river.
- Modify the Black River Pump Station to improve fish passage.

Although the *Green/Duwamish and Central Puget Sound Watershed (WRIA 9) Near-Term Action Agenda For Salmon Habitat Conservation* and the *Salmon Habitat Plan: Making our Watershed Fit for a King* are salmon-centered, pursuit of improved performance in ecosystem-wide processes and ecological functions that favors salmon generally captures those processes and functions that benefit all fish and wildlife.

2.3.2 Black River/Springbrook Creek

Key findings and identified habitat limiting factors in the WRIA 9 Habitat-limiting Factors and Reconnaissance Report–Part II (Kerwin 2000) include:

- Historically, it is believed that these creeks were important areas of refugia to anadromous salmonids that reared year round in the Green River basin.
- Water quality is degraded throughout much of this subbasin.
- There is no functioning riparian habitat throughout the lower reaches of Mill and Springbrook Creeks. The absence of this habitat contributes to the lack of stream channel diversity, complexity, and ultimately successful salmonid rearing capabilities.
- The Black River Pump Station is a partial fish passage barrier and does not meet current fish screening criteria. Adult salmonids that migrate upstream of this structure cannot migrate back into the mainstem Green River because of facility design.
- There are several known barriers to adult salmonid fish passage in Springbrook, Mill, and Garrison Creeks. Some of these barriers are seasonal and/or dependent on annual precipitation patterns.
- Degraded water quality throughout the lower reaches of Springbrook and Mill Creeks adversely impact adult Chinook and coho reproductive success along with coho, cutthroat, and steelhead juvenile survival.

2.3.3 Green River/Springbrook Restoration Projects

Restoration goals and objectives from the WRIA 9 Salmon Habitat Plan support lower Green River subwatershed areas in proximity to or within City shorelines. These goals aim to:

- Improve the health of the Green River, Springbrook Creek and additional tributary streams by identifying hardened and eroding streambanks, and correcting to the extent feasible with bioengineered stabilization solutions.
- Improve the health of the Green River by removing or setting back flood and erosion control facilities whenever feasible to improve natural shoreline processes. Where levees and revetments cannot be practically removed or set back due to infrastructure considerations, maintain and repair them using design approaches that maximize the use of native vegetation and LWD.
- Improve the health of the Green River and its tributary streams by increasing LWD recruitment potential through plantings of trees, particularly conifers, in the riparian corridors. Where feasible, install LWD to meet short-term needs.
- Where feasible, re-establish fish passage to Green River tributary streams.

Specific projects identified include:

- LG 17 Fort Dent Levee (RM 11.4-11.7): Without affecting existing soccer fields, setback the Fort Dent Levee to the maximum extent possible to create a low vegetated bench. Plant native riparian vegetation and add LWD along toe of slope and on the created bench. Rehabilitate existing banklines to create low velocity and/or shallow water habitat during juvenile migration.
- LG 18 Black River Marsh (RM 11): Rehabilitate riparian areas by establishing suitable native vegetation at the Black River confluence with the Green/Duwamish. Project would remove 200 cubic yards of fill from the left bankline of the Black River confluence just west of the railroad tracks. Other strategies include creating new off-channel habitats and/or placement of LWD along banklines.
- LG 19 Lower Springbrook Reach (RM 1): Rehabilitate riparian areas for rearing and off-channel refuge on Springbrook Creek. Approximately 4,500 feet of Springbrook would be improved with riparian plantings, LWD, pool construction, channel branch excavation and, where appropriate, modification to create a two-stage (low- and high-flow) channel.

In addition, a number of potential restoration efforts for the Black River/Springbrook Creek watershed were identified.

3. ONGOING PROJECTS, PROGRAMS, AND ORGANIZATIONS

3.1 CEDAR RIVER/LAKE WASHINGTON

3.1.1 WRIA 8 Lake Washington/Cedar/Sammamish Watershed Chinook Salmon Conservation Plan

The City is one of 27 members of the WRIA 8 forum, which funded and developed the *Final Lake Washington/Cedar/Sammamish Watershed Chinook Salmon Conservation Plan*. The WRIA 8 *Chinook Salmon Conservation Plan* establishes goals, objectives, and programmatic and site-specific actions to address restoration of habitat critical to salmon species in the Lake Washington/Cedar River Watershed (WRIA 8 2005). Site-specific restoration sites and objectives of the WRIA 8 *Chinook Salmon Conservation Plan* are identified within the Potential Sites Section 2.2.2 of the Restoration Plan.

3.1.2 King County Flood Control Zone District

King County adopted the 2006 Flood Hazard Management Plan that identified the need for an integrated countywide flood control program through formation of a flood control zone district to address subregional flood risk and infrastructure needs on tributaries and in local jurisdictions.

In 2007, the King County Council established the King County Flood Control Zone District (KCF CZD) which included transfer of the assets of the previously-existing 10 individual flood control zone districts to the new countywide district and established a countywide tax assessment.

Current plans call for spending between \$179 million and \$335 million to implement the recommendations included in the recently adopted Flood Hazard Management Plan (King County 2007). These plans and projects include the installation of setback levees and inclusion of habitat features as part of the overall flood control project. The plan was adopted by the King County Council January 16, 2007.

Within the Flood Hazard Management Plan lies the Action Plan to address flood risk reduction needs as well as allocating grant funds. Basin-specific areas within King County are categorized based on requiring “status quo” for work that can be achieved with the current funding or “enhanced funding” for high priority needs that will require additional funding sources. A full list of Cedar River proposed actions and cost estimates can be seen below at Table 3-1 (KCFHMP 2007).

Table 3-1. 2006 King County Flood Hazard Management Plan

Proposed Actions and Cost Estimates for the Cedar River (2007-2016)			
Proposed Action	Description	Project Start Date	Estimated 10-Year Cost
Cedar River Residential Flood Hazard Mitigation Analysis	Determine best alternative(s) for reducing risks to homes in areas subject to flood hazards including both repetitive loss and proposed project areas. Emphasis will be on residential neighborhoods with extensive flood hazard areas. Supports recommendations ERA-1 through 4.	2008	\$175,000
Cedar River Channel Migration Zone Study and Mapping.	Prepare channel migration zone study and maps for the Cedar River.	2009	\$30,000
Cedar Rapids Levee Setback	Setback levee to improve flood conveyance and restore habitat. Complete project design, permits, and construction. Funding will cover project management and non reimbursable grant expenses associated with this grant funded project. Total project cost is estimated at \$1,500,000.	2009	\$137,000
Jan Road-Rutlege Johnson Levee Setbacks	Remove portions of both levees that protect only open space. Segments of existing levees constrict conveyance and direct erosive flood flows into the Cedar River Trail and State Route 169.	2009	\$955,000
Dorre Don Meanders - Phase 1 Flood Hazard Analysis	Purchase flood-prone properties in lower Dorre Don area and, where possible, modify levees to improve flood conveyance and protect residential area.	2009	\$175,000
Maplewood Acquisition and Levee Setback Phase 1	Evaluate hazard reduction options in neighborhood at risk of flooding due to landslide and rapid channel change	2009	\$116,446
Renton - Cedar River Bridge Flood Reduction Project	Reconstruct one of five bridges to an elevation above the new floodplain (protects major public infrastructure).	2014	\$667,395
Cedar Grove Mobile Home Park Acquisition Project	Purchase mobile home park and provide relocation assistance to the residents in this area of major flood hazards.	2008	\$4,349,000
Rainbow Bend Levee Setback and Floodplain Reconnection	Setback or remove levee to improve flood conveyance and storage through this reach and to restore floodplain functions.	2009	\$1,733,000
Cedar River Early Action Residential Flood Hazard Mitigation	Purchase or otherwise mitigate flood risks to nine repetitive loss properties not addressed by other projects in this basin. Supports recommendations ERA-1 and 4.	2009	\$2,811,000
Herzman Levee Setback & Floodplain Reconnection	Setback levee to reduce erosive forces on the Cedar River Trail and State Route 169.	2008	\$1,023,000
Cedar River Gravel Removal Project	Riparian enhancement, both sides of reach, Facilitate instream pool structure, habitat diversity and floodplain connections in reach.	2010	\$6,039,877
Lower Lions Club	Purchase and remove flood-prone homes.	2011	\$1,485,671

Table 3-1. 2006 King County Flood Hazard Management Plan (continued)

Proposed Actions and Cost Estimates for the Cedar River (2007-2016)			
Proposed Action	Description	Project Start Date	Estimated 10-Year Cost
Lower Jones Road Setback Project	Purchase the homes and property, set back road, and associated revetment.	2012	\$4,408,000
Maplewood Acquisition and Levee Setback Phase 2	Reduce flooding risks in neighborhood at risk of flooding due to landslide and rapid channel change.	2013	\$10,528,784
Getchman Levee Setback and Floodplain Reconnection	Setback the levee to improve river's flood conveyance, flood storage, and its interaction with lower Taylor Creek, while maintaining protection for Maxwell Road. Most of the acquisitions for this project are already completed or are underway.	-	\$2,670,000
Rhode Levee Setback and Home Buyouts	Purchase homes along path of fastest, deepest flood flow, and set back the levee to lower localized velocities and depths.	-	\$3,518,000

3.1.3 King County Conservation District

Between the years of 1999 and 2005, total grant money offered by the King Conservation District (KCD) totaled about \$5 million for 64 projects and actions KCD funding doubled in 2006 due to an increase in the KCD assessment from \$5 per parcel to \$10 per parcel. In 2006 and 2007, KCD grants for habitat restoration within WRIA 8 totaled approximately \$1.4 million annually and funded 15 actions each year (King County 2009). Between 1994 and 2007, the City has received \$45,978 in KCD Member Jurisdiction and WRIA Forum Grant Program Grants within the City-wide reaches of Cedar River, Lake Washington, and May Creek for the May Creek Basin Action Plan which was completed in 2001.

High priority projects and programs for WRIA 8 KCD funding are found in the *Chinook Salmon Conservation Plan* and Potential Sites Section 6.2 for Cedar River and Lake Washington Shorelines within the City.

WRIA 8 projects in-progress or completed projects funded in part by KCD Grants include:

- The Cedar Rapids - Ricardi Reach Floodplain Acquisition (C224) includes 15 acres for restoration project (C222) work and levee removal. The area is between RM 7.2-7.4 of the Cedar River mainstem and was completed 12/31/2007.
- Rainbow Bend Acquisition allows funds from the 2007 KCD Grant Cycle to purchase 20 acres of floodplain at a cost of \$1.1 million along the Lower Cedar River. The area includes most natural existing riverine and riparian habitat downstream from Maple Valley.
- The Cedar River Habitat Restoration Stewardship (2007) provides funds for planting projects and stewardship of restoration sites such as the Lions Club side-channel project.
- Lower Cedar Acquisition allows funds to purchase up to 20 acres of floodplain along the Lower Cedar River (RM 9 - 15.1) in 2008.

For a map and list of further habitat work projects made possible in part by King Conservation District grants in WRIA 8, go to: <http://hws.ekosystem.us/>

3.1.4 City of Renton Restoration Projects and Programs

3.1.4.1 Renton Community Services Department

The Volunteer Program within the City's Community Services Department operates within many City departments and several restoration-specific regional groups. Within the City, park and recreation volunteer opportunities are available for a variety of groups based on size, commitment, and interest. Habitat restoration volunteer park projects in the past 1-2 years include:

- Cedar River Trail invasive plant removal, replanting with trees and shrubs, and litter clean-up (2008-09);
- Gene Coulon Memorial Beach Park shoreline litter clean up and invasive plant removal (2008);
- Fish Ladder/Cedar River tree planting (2008); and
- Black River Riparian Forest invasive plant removal and path restoration (2008-09).

Upcoming park restoration projects in need of volunteers can be found on the spotlight opportunities webpage: <http://rentonwa.gov/working/default.aspx?id=568>.

3.1.4.2 Salmon Watchers Program

The Salmon Watchers Program provides opportunities for citizens to be involved in the care of salmon-bearing streams. During the salmon run season between September and January, volunteers record the number of salmon they witness at a selected location and the date and time of their site visits. The program serves to increase public awareness of the plight of the salmon, and indicates where habitat enhancement may be valuable. Volunteers will be trained at several locations on distinguishing the various species of salmon and trout; training is provided by the City of Renton Surface Water Utility and the King County Water and Land Resources Division.

Within Renton, volunteers can select from sites along the Cedar River and May Creek that are optimal for salmon watching. The specific locations will be safe and easily accessible. For more on the Salmon Watchers Program and volunteer opportunities, please visit the Salmon Watcher Web Site of King County Water and Land Resources:

<http://www.kingcounty.gov/environment/animalsAndPlants/salmon-and-trout/salmon-watchers.aspx>

3.1.4.3 Cedar River Naturalist Program

Friends of the Cedar River Watershed (FCRW) is the non-profit whose mission is to inspire conservation and protection of a healthy Cedar River Watershed through restoration, education, and stewardship. FCRW leads the Cedar River Naturalist Program and has been active in recruiting volunteers, hosting restoration work parties within the watershed, and raising funds to help build the Cedar River Watershed Education Center. Along with restoration events, FCRW programs include:

- The Cedar River Watershed Report works in collaboration with local schools, governments, the media, and non-profit groups to engage high school leaders in a progress evaluation towards sustainability in the Cedar River Watershed.
- The Cedar River Salmon Journey stations volunteer naturalists at sites along the Cedar River to educate visitors about the journey made by salmon from the ocean, through the Ballard Locks, into Lake Washington, and on up the River to spawn.

More information and volunteer opportunities can be found at: www.cedarriver.org

3.2 GREEN RIVER /SPRINGBROOK CREEK

3.2.1 WRIA 9 Green/Duwamish and Central Puget Sound Watershed Salmon Habitat Plan

The importance of the Green/Duwamish Watershed as an ecosystem within the Puget Sound has resulted in considerable focus on this area in terms of restoration potential. With the federal listing of Chinook and bull trout as endangered species, watershed planning in the region (e.g., WRIA 9) has focused on developing a Salmon Habitat Plan (WRIA 9 2005). The plan establishes goals, objectives, and programmatic and site specific actions to address restoration of habitat critical to salmon species in the Green River watershed.

The City was one of 16 members of the WRIA 9 Forum, which participated in financing and developing the *Salmon Habitat Plan: Making Our Watershed Fit for a King*. The City's Shoreline Master Program update relies on the science included in the WRIA 9 *Salmon Habitat Plan* and related documents, and incorporates recommended projects and actions from the WRIA 9 documents.

3.2.2 King County Flood Control Zone District

King County adopted the 2006 Flood Hazard Management Plan that identified the need for an integrated countywide flood control program through formation of a flood control zone district to address subregional flood risk and infrastructure needs on tributaries and in local jurisdictions.

In 2007 the King County Council established the KCFCZD which included transfer of the assets of the previously-existing ten individual flood control zone districts to the new countywide district and established a countywide tax assessment.

Within the lower Green River Basin, KCFCZD sponsors levee improvement projects with local partnerships (KCFHMP 2007). A start list of Green River proposed actions and cost estimates from 2007-2016 generated by the 2006 King County Flood Hazard Management Plan includes five projects listed in Table 3-2:

Table 3-2. 2006 King County Flood Hazard Management Plan

Proposed Actions and Cost Estimates for Green River, City of Renton Vicinity (2007-2016)		
Proposed Action	Description	Estimated 10-Year Cost
Pump Station Operation	Maintain and Operate three pump stations including the Black River pump station	\$2,100,000
Green River Flood Study	Complete flood study and corresponding Federal Emergency Management Agency Flood Insurance Rate Maps for the Green River between RM 5 - 45.	\$1,000,000
Nursing Home Levee Project	Rehabilitate levees to reduce the risk of flooding in the Lower Green River.	\$2,438,000
Salmon Habitat Recovery Cost Share	Provide financial support to and participate in Salmon Recovery Funding Board and U.S. Army Corps of Engineers Ecosystem Recovery Project habitat projects.	\$1,000,000
Green River Flood Control Zone District Program Management	Provide program management and administration to Green River Flood Control Zone District projects, programs, and other related activities.	\$1,000,000

3.2.3 King Conservation District

The KCD is a non-regulatory natural resources assistance agency founded in 1949. The District promotes conservation through demonstration projects, educational events, providing technical assistance, and, in some cases, providing or pointing the way to funds that may be available for projects.

The WRIA 9 Forum allocates approximately \$634,000 in KCD funds annually to support habitat protection and restoration projects, stewardship projects and programs, and essential technical assessments (KCD 2009). Since 2005, high priority sites for WRIA 9 KCD funding were identified in the WRIA 9 *Habitat Plan* and *Strategic Assessment* report.

Between the years of 1994-2007, the City of Renton has been awarded a total of \$86,076 in KCD Member Jurisdiction and WRIA Forum Grant Program Grants for six projects within the City-wide reaches of Green River and Black River/Springbrook Creek. These projects include the Wetland Mitigation, Springbrook Creek, Future Stream Enhancement Project for 1994 (\$5,456) and 1995 (\$5,565); the Springbrook Creek Channel Improvement and Wetland Mitigation Project (\$11,549.19); the Black River Riparian Forest Buffer Enhancement Plan (\$3,552); the SW 34th Street Culvert Replacement Project (\$55,085); and the Black River Channel Native Plant Restoration Project PI & PII (\$4,869).

3.2.4 Green-Duwamish Ecosystem Restoration Project

A couple of the projects listed in the WRIA 9 Recommended Programs were originally identified by the Green-Duwamish Ecosystem Restoration Project (ERP), a cooperative effort between 17 local governments, Indian Tribes, the State of Washington, NOAA Fisheries Service, the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and various other organizations and private citizens.

The ERP generated a list of 45 projects, 29 of which were ultimately incorporated into the *Salmon Habitat Plan: Making Our Watershed Fit for a King* which received nearly \$2 million in funding. As of 2005, ERP implementation funds of nearly \$2 million were provided by the federal government under the Water Resources Development Act of 2000. Of the 29 projects incorporated in the *Salmon Habitat Plan*, three are found in the Lower Green River and Springbrook Creek areas specific to the City of Renton. These projects listed numerically (LG-#) in the Plan include Fort Dent levee setback (LG-17), Black River Marsh riparian rehabilitation (LG-18), and Lower Springbrook Reach (LG-18); see full description at Potential Restoration Sites Section 6.1.2.

3.2.5 City of Renton Restoration Projects and Programs

3.2.5.1 Renton Community Services Department

See Section 3.1.4.1 for information about the Volunteer Program within the City's Community Service Department.

3.2.6 Black River Watershed Alliance

The Black River Watershed Alliance (BRWA) is an organization which coordinates a variety of restoration projects within the Black River and Springbrook Creek Watersheds. Past projects include: native plant restoration on the downstream and upstream sides of the Black River Pump Station as part of the Black River Channel Native Plant Restoration Project, Black River Riparian Forest wildlife monitoring, free class and group presentations, free school and group field trips through the forest, booths at open houses and events, and participation in the King County Clean Stream Car Wash Program (Renton 2007).

Restoration work done by Black River Watershed Alliance has received support through grants from King County matched by the City with KCD funds. With the help of volunteers, BRWA aims to:

- Protect and enhance the Black River Watershed for wildlife habitat, water and air quality, and for its historic value to indigenous people.
- Develop community awareness of the Black River Watershed through educational field trips and presentations, and restoration projects.
- Foster community stewardship of the Black River.
- Work cooperatively with other groups interested in protecting the Black River.
- Provide an opportunity for the community to connect with nature.

More information at: <http://www.blackriverwatershedalliance.com/>

3.2.7 Herons Forever

Herons Forever is a non-profit organization. The Black River heron colony is one of the largest in Washington State with over 50 active nests. Herons Forever is a non-profit organization which strives to build local support to preserve, protect, and enhance the Black River Riparian Forest for wildlife habitat and aesthetic enjoyment of citizens. Herons Forever sets up volunteer work parties to help restore Blue Heron habitat through invasive plants and litter removal and has helped secure public funds to purchase nearly 60 acres of private land buffering heron nest sites by 1996.

More information at: <http://www.heronsforever.org/>

3.3 CITY OF RENTON CITY-WIDE ACTIONS

3.3.1 Stormwater Management and Planning

Stormwater discharge from throughout the city eventually enters surface water and enters the Lake Washington/Cedar River or Green River watersheds.

On March 31, 2008, Ecology approved the City's National Pollutant Discharge Elimination System (NPDES) Phase II permit. The NPDES Phase II permit is required to cover the City's stormwater discharges into regulated lakes and streams. Under the conditions of the permit, the City must protect and improve water quality through public education and outreach; detection and elimination of illicit non-stormwater discharges (spills, illegal dumping, wastewater); management and regulation of construction site runoff; management and regulation of runoff from new development, redevelopment and construction; and pollution prevention and maintenance for municipal operations.

Currently, Renton has approved use of the 2009 King County Stormwater Permit Design Manual along with city amendments to implement NPDES Phase II Municipal Stormwater Permit deadlines given by the Department of Ecology in 2007. Based on the implementation of the City's Storm Water Management Plan, new developments which create more than 5,000 square feet of new impervious surface trigger drainage review including off-site analyses, erosion and runoff control, and conveyance system design. This will help mitigate any further water quality degradation done to salmon bearing waters such as May Creek and Cedar River as well as nearshore riparian habitat of Springbrook Creek and Lake Washington.

Implementing NPDES Phase II flow control and surface water design standards will aid in the City's ability mitigate pollution from municipal stormwater systems into the City's streams, lakes, rivers, and wetlands.

3.3.2 Critical Areas Regulations

The City of Renton Critical Areas Regulations are found in Renton Municipal Code Section 4-3-050 of Chapter 3, Environmental Regulations and Overlay Districts. The City adopted a revised Critical Areas Ordinance (CAO) in 2004, consistent with other requirements of the Growth Management Act update. The updated regulations are based on "best available science," and provide a high level of protection to critical areas in the City, particularly for streams and wetlands.

The regulations affect lands outside of Shoreline Management Act jurisdiction and address:

- Geologically hazardous areas
- Frequently flooded areas
- Critical aquifer recharge areas
- Wetlands
- Habitat conservation areas, including streams and lakes and areas associated with priority species

Provisions in the regulations generally:

- Provide for the general prohibition of alteration in those critical areas with ecological importance such as wetlands, streams, lakes, marine shorelines, and wildlife habitat areas.
- Restrict the range of allowed uses.
- Provide for buffers to either protect human health and safety (in the case of Geological Hazards) or protect ecological functions.

3.3.3 Parks, Recreation, Open Space, and Trails Plan

The City of Renton's objective under this policy framework is to provide a high quality comprehensive park, recreation, open space, and trails system to meet short- and long-term needs of current and future Renton residents. The following policies concerning natural resources protection and restoration include:

Policy P-17. Encourage private donations of properties where public access is anticipated or planned and where consistent with the Long Range Park, Recreation, Open Space and Trails Plan.

Policy P-41. Steward the City's open space network to protect the City's natural character and sustain its urban forest resources.

Policy P-57. Develop inventories and management plans for open space and natural areas.

Policy P-58. Provide funds for native vegetation and other habitat enhancements to encourage appropriate wildlife on existing open space lands where consistent with the recreational use of the area.

Policy P-59. Acquire open space that has the following features:

- a. Can fill a gap or connect the existing open space network
- b. Is environmentally sensitive or unique
- c. Provides wildlife habitat
- d. Can protect natural resource areas
- e. Is archeologically significant
- f. Provides relief from urban development

Policy P-60. Increase public awareness of, and appreciation for, specific natural features through education and interpretive programs.

Policy P-67. Linkages should be provided with surrounding communities within major regional corridors such as the Cedar River, Green River, the Lake Washington Loop, and the Soos Creek Trail.

Policy P-109. Partner with non-profit agencies, King County, the State of Washington, the Federal government and other public and private service providers to meet the cultural, recreational, social, and environmental programs and space needs of the City.

Policy P-116. Coordinate with other governmental agencies and private organizations to provide a connected open space system for the City and surrounding region.

3.3.4 Capital Facilities Plan

3.3.4.1 Surface Water Utility

A majority of the water quantity and quality facilities are privately owned and maintained on-site as required in accordance with the Renton Storm and Surface Water Drainage Ordinance (Renton Municipal Code Chapter 22, Section 4-22). The Surface Water Utility owns, maintains, and operates all storm and surface water management facilities located within public right-of-ways and easements dedicated for storm and surface water management purposes.

Level of Service (LOS) Standard in Renton

The Surface Water Utility LOS is intended to accomplish the following:

- Provide adequate of surface water management for the appropriate rainfall duration and intensity to protect public safety, property, and convenience of areas within City;
- Provide a level of storm water treatment that adequately protects surface and groundwater quality and other beneficial uses of water bodies;
- Provide flow control from new construction that restricts the rate of storm water runoff to pre-developed level; and
- Provide protection of fish and wildlife habitat.

Capital Facilities and Funding Plan, 2007-2012

Surface Water Utility developments include: Cedar River Basin, Springbrook Creek Wetland and Habitat Mitigation Bank, Storm System Improvement and Replacement, Springbrook Creek Improvements, and Green River Ecosystem Restoration. Budgeting costs for these items between the years of 2007-2012 will be \$8,835,000 (CFP 2008).

3.3.4.2 Parks

Parks and open space areas within the City provide ways for the public to interact with the natural environment. Adjacent and within sensitive shorelines, open space natural areas serve to protect existing habitat from effects of the built environment. Park and open space areas must continue to grow to match City growth as well as mitigate development impacts to wildlife habitat within sensitive shoreline areas.

The proposed LOS standard for park and open space land established for Renton in its Comprehensive Park, Recreation and Open Space plan is 18.58 acres/1,000 population. The LOS within Renton's Potential Annexation Areas is only 5.35 acres/1,000, which reduces the 2007 overall Planning Area LOS to 12.26 acres/1,000. Continued acquisition of park and open space lands will be needed as the City's residential growth continues within its existing boundaries, and as it expands into its underserved Potential Annexation Areas (CFP 2008).

Acquisitions

Two Park types within Renton's Capital Facilities Plan cater toward open space protection and restoration:

1. Open Space Areas, defined as general open space, trail systems, and other undeveloped natural areas that includes stream corridors, ravines, easements, steep hillsides or wetlands. Often they are acquired to protect an environmentally sensitive area or wildlife habitats. In other cases they may be drainage corridors or heavily wooded areas. Sometimes trail systems are found in these areas.
 - Open Space Areas applicable to the Cedar River/Lake Washington area include: May Creek Greenway (29.82 acres), Honey Creek Greenway (35.73 acres), May Creek/McAskill (10 acres), and Cedar River Natural Area (237 acres).
 - Open Space Areas applicable to the Green River/Springbrook area includes: the Black River Riparian Forest (92 acres), Panther Creek Wetlands (73 acres), Renton Wetlands (125 acres), and Cleveland Property (23.66 acres), Springbrook Watershed (38 acres).

The majority of this park type is wetlands, steep slopes or land otherwise not suitable for recreational development.

2. Linear Parks are open space areas, landscaped areas, trail systems and other land that generally follow stream corridors, ravines or other elongated features, such as a street, railroad or power line easement. This type of park area usually consists of open space with development being very limited. Trail systems are often a part of this type of area.
 - The Linear Parks applicable to the Cedar River/Lake Washington area include: the Cedar River Trail (4.5 miles), Honey Creek Trail (1 mile), and Lake Washington Blvd (1.5 miles).
 - The Linear Parks applicable to the Green River/Springbrook area includes the Springbrook trail spanning a length of two miles.

Opportunities exist for additional linear parks along utility corridors.

Management of Existing Parks

The city policies for management of parks provide for meeting multiple goals including both recreational use and ecological stewardship.

Opportunities for incremental changes in park management to sustain more productive shoreline resources include measures such as shifting activity areas such as picnic areas further from the water's edge, relocating lawn areas further from the water's edge and planting and maintaining native vegetation buffers along the water. The management of waterfront park lands represents a challenge in balancing competing goals of the Shoreline Management Act of increasing public recreational use of the shoreline and protecting and enhancing ecological processes.

3.3.5 Private Development

Many shoreline properties have the potential for improvement of ecological functions through:

- Management of shoreline vegetation to emphasize native species to reduce potential water quality impacts from chemicals (fertilizers, herbicides, pesticides), contribute to temperature attenuation and provide food-cycle functions;
- Reduction or modification of shoreline armoring;
- Reduction of overwater cover and in-water structures or reducing shading; and
- Reductions in impervious surface coverage and/or water quality treatment of runoff prior to discharge into surface waters.

The SMP includes requirements for removing bulkheads and similar hard shoreline structure when properties are redeveloped, including partial compliance at lower levels of redevelopment. The City could also explore administrative incentives for restoration, such as waiving some or all permit fees or providing more rapid review.

Multiple contiguous properties may be restored through grant resources that would address restoration more effectively than through lot-by-lot redevelopment.

3.3.6 Public Education/Outreach

Voluntary actions by shoreline property owners are an essential element of the restoration strategy and have the potential to affect a greater extent of the property than the limited number of properties expected to redevelop in the future. The Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan includes a range of "Outreach and Education Actions" with a range of target audiences from the general public, to shoreline property owners in general, to lakeshore property owners specifically, to businesses, to youth, and others.

The City also can work with other local jurisdictions to establish a Shore Stewards program for Lake Washington, the Cedar River, and Springbrook Creek within the existing King County. Shore Steward programs provide a forum for waterfront and stream-side property owners to share ideas, information and resources and sets up guidelines for shoreline residents to preserve and enhance the shoreline environment.

4. RENTON RESTORATION OPPORTUNITIES & PRIORITIES

4.1 OVERALL CITY GOALS

The Renton SMP Restoration Plan is intended to be coordinated with other existing plans in the area, but provide additional potential project focused on opportunities identified in the SMP Inventory/Characterization.

The SMP Restoration Plan Goals are:

- Continue to work collaboratively with other jurisdictions and stakeholders in WRIA 8 to implement the Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan.
- Use the scientific foundation and the identification of opportunities and constraints in the SMP Inventory/Characterization together with other watershed, fish, and flood control plans as a resource to identify restoration strategies and projects.
- Use the comprehensive list of projects and other actions consistent with the Chinook Salmon Conservation Plan, and the King County Flood Management Plan as sources of potential site-specific projects.
- Coordinate land use decisions, particularly mitigation required of development projects, with the comprehensive list of project actions for coordinated implementation of the most effective restoration strategy.
- Encourage voluntary restoration by homeowners and other shoreline property owners, in addition to agency funded and project related actions as well as resource friendly daily actions such as vegetation selection and management, pesticide/herbicide use, car washing and other activities.
- Provide for management of City-owned parks and other facilities to provide for ecological restoration, along with recreation, flood control and other goals.
- Seek funding for restoration actions and programs from a variety of sources and by working with other WRIA 8 stakeholders to seek federal, state, grant and other funding opportunities.

4.2 LAKE WASHINGTON/CEDAR RIVER

4.2.1 Restoration Priorities

Restoration of Renton's shoreline areas involves balancing ecological goals with site-specific limitations. The *WRIA 8 Chinook Conservation Strategy* and the *WRIA 8 Chinook Salmon Conservation Plan* lists an array of actions on potential restoration sites listed above that watershed partners can strive to carry out over the next decade. *Chinook Conservation Strategy* priorities for Lower Cedar River and South Lake Washington intend to:

- Protect the best remaining habitat and prevent degradation of existing high-quality habitat.
- Protect, reconnect, and/or restore off-channel habitat and shallow, mainstem habitat.
- Protect and, where feasible, restore floodplain connectivity throughout the Cedar River subarea.

- Remove bank hardening and remove or setback existing structures in the floodplain to prevent additional bank hardening.
- Protect and restore in-stream channel complexity and functional riparian conditions.
- Ensure the adequate and continual supply of suitable spawning substrate throughout the system.
- Reduce forest road runoff and fine sediments entering the mainstem and its tributaries.
- Protect and maintain flows in the mainstem and tributaries to provide suitable rearing, spawning, and migratory habitats for all salmon species.
- Enhance existing habitats: This action will improve the functioning of the existing aquatic, riverine wetland, and riparian habitats which presently exist along the Cedar River and at tributary mouths entering Lake Washington. These actions could include the removal of non-native invasive vegetation, installation of native riparian vegetation, and installation of LWD below ordinary high water mark.

4.2.2 Restoration Strategy by Reach

Tables 4-1 summarizes restoration strategies by the individual reaches identified in the Renton Shoreline Master Program Inventory and Characterization and shown in Map 1.

Table 4-1. Shoreline Restoration Strategies by Reach

Shoreline Reach	Location	Restoration Objectives
Lake Washington		
Lake Washington Reach A	From Bellevue city limits to Renton city limits	<p>This developed single-family area provides primarily lawn and ornamental vegetation at the shoreline. Opportunities for restoration to limit or reverse ongoing adverse impacts shall be through providing for native vegetation in buffers adjacent to the water and may be implemented as individual properties redevelop based on the standards related to lot depth together with replacement of shoreline armoring with soft shoreline protection incorporating vegetation.</p> <p>Educational programs to encourage voluntary replacement of ornamental vegetation with native vegetation and to replace or upgrade docks and other over-water structures has a roughly equal or better chance of affecting change as do regulatory approaches.</p> <p>There is no public land in this reach and little opportunity for public enhancement projects.</p>
Lake Washington Reach B	From the city limits to the Seahawks training facility	<p>The status of this area and restoration opportunities are similar to Reach A.</p> <p>Some opportunities may be present at the Puget Sound Energy submerged cable crossing in this reach if it is replaced in the future.</p>
Lake Washington Reach C	From the Seattle Seahawks headquarters and training facility through the former Barbee Mill site.	<p>This area provides some riparian vegetation at the Seahawks facility from previous redevelopment activity. There is a large vacant parcel with complex wetlands and some riparian vegetation in the center portion of the site that would require buffer preservation and enhancement upon redevelopment. The site is currently a superfund site and it will be important to integrate the policies and standards of the SMP as part of any cleanup program.</p> <p>Adjacent to the Barbee Mill subdivision there is a narrow replanted vegetation area on public aquatic land that has been withdrawn from leasing in recognition of the ecological restoration activities that have taken place.</p> <p>A portion of the frontage to the south is bulkheaded single family lots with pending dock applications.</p> <p>In the long term over 20 to 50 years, May Creek delta formation will lead to additional riparian area and shallow wetlands where riparian vegetation will provide multiple benefits to aquatic and terrestrial species.</p> <p>The May Creek Basin Management Plan addresses the delta in the following: “</p> <p style="padding-left: 40px;">In the event that the mill property on the May Creek Delta redevelops in the future, opportunities to enhance May Creek habitat and reduce the need for maintenance dredging should be explored. Although a feasibility study of this option has not been undertaken, it is possible that modifying the May Creek channel could reduce the need for maintenance dredging and provide a unique opportunity to establish an improved habitat area within the lakeshore commercial area, allowing the realization of environmental and economic benefits.”</p> <p>The (WRIA 8) Chinook Salmon Conservation Plan includes Project C277 Restoration of mouth of May Creek. In the future, public projects to develop and enhance riparian and emergent vegetation within the delta should be pursued. This may involve installation of “habitat islands” to speed the natural process of delta formation.</p>
Lake Washington Reach D	From May Creek to Mountain View Avenue	<p>This developed primarily single-family area provides primarily lawn and ornamental vegetation at the shoreline.</p> <p>The status of this area and restoration opportunities are similar to Reach A and would involve incremental improvements to vegetation, bulkheads and docks as property redevelops as well as voluntary improvements</p>

Table 4-1. Shoreline Restoration Strategies by Reach (continued)

Shoreline Reach	Location	Restoration Objectives
		<p>encouraged through education programs.</p> <p>Some opportunities may be present on short sections of shoreline presently part of the railroad right of way that may be acquired by King County.</p> <p>The City of Renton Parks Department has opportunities to naturalize the Kenneydale Park water frontage through softer shoreline protection in conjunction with beach restoration and provision of shoreline native riparian vegetation.</p>
Lake Washington Reach E	from Mountain View Avenue to Gene Coulon Park	<p>This developed primarily single-family area provides primarily lawn and ornamental vegetation at the shoreline. The status of this area and restoration opportunities are similar to Reach A and would involve incremental improvements to vegetation, bulkheads and docks as property redevelops as well as voluntary improvements encouraged through education programs.</p>
Lake Washington Reach F	The less developed northerly portion of Gene Coulon Park	<p>This public park provides numerous opportunities for enhancement of native riparian vegetation s implemented as part of ongoing park management. This must be balanced with goals of providing public visual and physical access to the shoreline.</p> <p>This area provides opportunities for enhancement project financed by a variety of grant funds.</p> <p>Enhancement of the mouth of Kenneydale Creek is enhancement Project C265 in the WRIA 8 Chinook Salmon Conservation Plan Recovery Plan</p>
Lake Washington Reach G	The more developed southerly portion of Gene Coulon Park	<p>This is the more active portion of the park with more hard surface, a boat launch ramp, over-water walkways, a swimming beach and water-oriented restaurant and recreational uses.</p> <p>Despite the amount of alteration, there are productive shoreline areas that provide opportunities for enhancement of native riparian vegetation should be implemented as part of ongoing park management. This must be balanced with goals of providing public visual and physical access to the shoreline.</p> <p>This area provides opportunities for enhancement project financed by a variety of grant funds.</p> <p>Enhancement of the mouth of Johns Creek is enhancement Project C264 in the WRIA 8 Chinook Salmon Conservation Plan Recovery Plan</p>
Lake Washington Reach H	Southport mixed-use development	<p>This site has received preliminary approvals for mixed use development. Buffers for vegetation management are not addressed in existing approvals and opportunities for public access along the waterfront and supporting water oriented uses are the designated priority.</p> <p>Enhancement of the near-shore area, including modification of the shore protection installed in the 1950s through 1970s should be a priority of both private development and public projects.</p> <p>The delta of Johns Creek also contributes sediment to this area which may contribute to restoration of some nearshore functions through natural processes.</p> <p>Options to work with private property owners to remove bulkheads and restore shallow water habitat is project C267 in the WRIA 8 Chinook Salmon Conservation Plan Recovery Plan.</p>
Lake Washington Reach I	Boeing Plant and to the Cedar River	<p>This reach of about 2,500 linear feet is about evenly divided between a vegetated area which is managed by the Department of Natural Resources (DNR) as public aquatic lands and the Boeing Renton Plant.</p> <p>Shoreline restoration of the DNR site to remove a portion of the existing flume create shallow water habitat,</p>

Table 4-1. Shoreline Restoration Strategies by Reach (continued)

Shoreline Reach	Location	Restoration Objectives
		<p>protect existing cove, and plant overhanging riparian vegetation along shore is project C266 in the WRIA 8 Chinook Salmon Conservation Plan Recovery Plan. Implementation of this program should ensure preservation of deep water areas in the adjacent Southport Development to meet the City's SMP goals for accommodating water dependent uses.</p> <p>In the future, public projects to develop and enhance riparian and emergent vegetation within the delta should be pursued. This may involve installation of "habitat islands" to speed the natural process of delta formation and is generally consistent with the WRIA 8 Chinook Salmon Conservation Plan Recovery Plan Project C267 which calls for restoring shallow water habitat.</p>
Lake Washington Reach J	Renton Municipal Airport	<p>This reach of about 650 feet is currently entirely armored with vertical bulkheads. The airport is currently pursuing reconfiguration and dredging for the seaplane dock. As part of this program they are proposing to use dredged materials to create one or more "habitat islands" that will provide both riparian and shallow aquatic habitat and also be located to direct siltation within the Cedar River Delta to reduce the needed frequency of maintenance dredging.</p> <p>Enhanced riparian vegetation may be provided on the habitat island(s) and adjacent to bulkheaded areas with the maintenance of trees so they do not achieve a height and diameter that will provide a substantial bird roosting area that could interfere with aviation safety as part of airport management. This may be accomplished by periodic thinning to remove more mature growth.</p>
Lake Washington Reach K	From the Renton Municipal Airport to the Seattle city limits	<p>This reach of about a mile is almost entirely a developed single family neighborhood with about 600 feet of multi-family development and a trailer park. This area is designated by Renton as a future area of Commercial, Office, Residential (COR) use which provides for high intensity use. Redevelopment of this area will provide opportunities for restoration through native vegetation in buffers adjacent to the water as well as possible reconfiguration or elimination of over-water structures.</p> <p>In the single-family area there are some opportunities for providing for native vegetation in buffers adjacent to the water as individual properties redevelop based on the standards related to lot depth together with replacement of shoreline armoring with soft shoreline protection incorporating vegetation. Educational programs to encourage voluntary replacement of ornamental vegetation with native vegetation and to replace or upgrade docks and other over-water structures has a roughly equal or better chance of affecting change as do regulatory approaches.</p> <p>There is no public land in this reach and little opportunity for public enhancement projects although several undeveloped areas have the potential for acquisition for a combination of public access, preservation and enhancement.</p> <p>WRIA 8 Chinook Salmon Conservation Plan Recovery Plan Project C269 calls for working with homeowners to remove bulkheads, convert of nearshore habitat to shallow beach, restore riparian vegetation and reduce the number of docks by using community docks.</p>
May Creek		
May Creek A	From the mouth of the creek to Lake Washington Blvd.	<p>Restoration of the delta at the mouth of May Creek is addressed in Lake Washington Reach C.</p> <p>Vegetation in the May Creek corridor was set aside as an open space area and enhanced as part of the recent Barbee Mill subdivision. Monitoring and enforcement of vegetation establishment standards will be needed to</p>

Table 4-1. Shoreline Restoration Strategies by Reach (continued)

Shoreline Reach	Location	Restoration Objectives
		ensure successful maturation of the vegetation .
May Creek B	From Lake Washington Blvd to I-405	<p>This is a relatively intact reach with mature native riparian vegetation. Preservation of a buffer can be expected with future residential development.</p> <p>Planting of conifers within the buffer area in accordance with May Creek Basin Plan Recommendation 13 to supplement the existing deciduous trees will establish a mix of vegetation and over the longer term establish of forest canopy that will provide ongoing recruitment of large woody debris (LWD). As an interim measure, Recommendation 12 calls for installation of LWD to make up for an existing deficit and promote natural channel processes.</p>
May Creek C	From I-405 to NE 36th Street	<p>This section of May Creek is largely owned by Renton and King County and maintained as open space. There are several private properties that extend to the creek and have cleared vegetation up to the creek in some places.</p> <p>Acquisition of existing privately owned parcels on a willing seller basis is a priority to allow management of the stream corridor as public open space.</p> <p>Where riparian vegetation has been cleared or where it is primarily deciduous, removal of invasive species, interplanting of conifers in accordance with May Creek Basin Plan Recommendation 13 will establish a mix of vegetation and over the longer term establish of forest canopy that will provide ongoing recruitment of large woody debris (LWD). As an interim measure, Recommendation 12 calls for installation of LWD to make up for an existing deficit and promote natural channel processes.</p>
May Creek D	From NE 36th Street to the city limits	<p>This section of May Creek is largely part of the King County and maintained as open space. There are several private properties that extend to the creek and have cleared vegetation up to the creek in some places, installed bank protection and in some cases bridged the stream for access.</p> <p>Acquisition of existing privately owned parcels on a willing seller basis is a priority to allow management of the stream corridor as public open space. Properties that are acquired should be programmed for removal of bank stabilization, removal of bridges and replanting.</p> <p>Where riparian vegetation has been cleared or where it is primarily deciduous, removal of invasive species, interplanting of conifers in accordance with May Creek Basin Plan Recommendation 13 will establish a mix of vegetation and over the longer term establish of forest canopy that will provide ongoing recruitment of large woody debris (LWD). As an interim measure, Recommendation 12 calls for installation of LWD to make up for an existing deficit and promote natural channel processes.</p>
Cedar River		
Cedar River A	Mouth to Logan Avenue	<p>This reach of the Cedar River is bounded by the City of Renton Cedar River Trails park on the east and the Municipal Airport on the west.</p> <p>Within the park, opportunities for enhancement of native riparian vegetation should be implemented as part of ongoing park management. This must be balanced with goals of providing public visual and physical access to the shoreline.</p> <p>Enhanced riparian vegetation may be provided adjacent to the airport with the maintenance of trees so they do</p>

Table 4-1. Shoreline Restoration Strategies by Reach (continued)

Shoreline Reach	Location	Restoration Objectives
Cedar River B	Logan Avenue to I-405 bridge	<p>not achieve a height and diameter that will provide a substantial bird roosting area that could interfere with aviation safety as part of airport management. This may be accomplished by periodic thinning to remove more mature growth.</p> <p>Enhancement of native riparian vegetation shall be implemented as part of park management, balanced with needs of flood control levees and opportunities to provide public visual and physical access to the shoreline.</p> <p>Replacement of the North Boeing Bridge should be explored. This bridge is an obstruction to flood water. Replacement of the bridge with one that is not an obstruction may reduce the amount of dredging needed for flood control.</p> <p>Flood control dredging of the river should be coordinated with mitigation projects, including possible enhancement of the delta through habitat islands.</p>
		<p>Enhancement of native riparian vegetation shall be implemented as part of flood control management programs that may be integrated with and opportunities to provide public visual and physical access to the shoreline. Vegetation management and public access should be addressed in a comprehensive management plan prior to additional flood management activities.</p> <p>The existing public walkway near the water should be considered for relocation to the top of the bank and the streambank revegetated with native species.</p> <p>Within the city owned land, including the senior center, the park maintenance facility, Jones Park and Liberty Park, opportunities for enhancement of native riparian vegetation should be implemented as part of ongoing park management. This must be balanced with goals of providing public visual and physical access to the shoreline.</p> <p>Exploring options to add native riparian vegetation on left bank of river is Project C 203 in the WRIA 8 Chinook Salmon Conservation Plan Recovery Plan Project C267 which calls for restoring shallow water habitat.</p> <p>Project C 210 notes that Renton's three riverside parks (Liberty, Cedar River Park, NARCO property) are going through re-master planning and suggests pursuing opportunities to move some of more active recreation uses to protect habitat with more passive recreational uses along the water.</p>
Cedar River C	I-405 to the SR 169	<p>Within the city owned land, including the Cedar River Park on the north site (right bank) and public open space on the south side (left bank) opportunities for enhancement of native riparian vegetation should be implemented as part of ongoing park management. This must be balanced with goals of providing public visual and physical access to the shoreline.</p> <p>Enhancement of native riparian vegetation and removal or replacement of bank armoring can be expected to be implemented upon redevelopment of private property on the north shore.</p> <p>In the Maplewood neighborhood downstream of SR 169 the WRIA 8 Chinook Salmon Conservation Plan Recovery Plan Project C208 calls for possible flood buyouts in this neighborhood and pursuit of opportunities to restore the floodplain as well as options for bioengineering and softening bank hardening. The King County Flood Management Plan calls for voluntary buy-out of this area because more than half the neighborhood would be inundated by shallow flooding in a 100-year event and an active landslide scarp poses risk of a major landslide that could block all or a portion of the channel, and could potentially redirect the flow of the river into the residential area.</p>

Table 4-1. Shoreline Restoration Strategies by Reach (continued)

Shoreline Reach	Location	Restoration Objectives
Cedar River D	SR 169 to UGA boundary	<p>In the single-family areas there are some opportunities for providing for native vegetation in buffers adjacent to the water as individual properties redevelop based on the standards related to lot depth together with replacement of shoreline armoring with soft shoreline protection incorporating vegetation. Educational programs to encourage voluntary replacement of ornamental vegetation with native vegetation and to replace or upgrade docks and other over-water structures has a roughly equal or better chance of affecting change as do regulatory approaches.</p> <p>This reach of a little more than a mile is largely in public ownership. The few residential parcels are designated for voluntary buy-outs in the King County Flood Management Plan. There are several mitigation projects in this area including rearing channels constructed by King County, Renton and the Corps of Engineers, although some have been damaged by recent floods. This reach should be the subject of a comprehensive restoration plan.</p> <p>The WRIA 8 Chinook Salmon Conservation Plan Recovery Plan calls for Project C212 to provides for conifer interplanting in forested riparian areas within reach, while noting concern raised that under natural conditions forested riparian areas in the lower Cedar River may have been primarily deciduous; Project C213 calls for existing riparian habitat, instream habitat conditions and extensive LWD in reach; Project C214 4 1 proposes a study of options to protect habitat in this reach and reduce flooding and erosion in Ron Regis Park: including exploration of LWD installation and levee setbacks to prevent excessive erosion and flood damage to Ron Regis Park while allowing natural habitat forming processes</p>

4.3 GREEN/SPRINGBROOK

4.3.1 Priorities

Proposed Actions by the *Green/Duwamish and Central Puget Sound Watershed Salmon Habitat Plan* include projects to protect, restore, rehabilitate, or substitute habitat or the processes that create habitat.

The Plan recommends an array of projects such as the potential restoration sites listed above that watershed partners can strive to carry out over the next 10 years. Lower Green River and Springbrook Creek, in accordance with the *WRIA 9 Salmon Habitat Plan* proposed actions intend to:

- Protect existing processes and habitats that are working well;
- Restore processes and habitats that can be returned to good conditions;
- Rehabilitate damaged processes and habitats that can be sustained with on-going efforts; and
- Substitute processes and habitats that are lost.

4.3.2 Restoration Strategy by Reach

Tables 4-2 summarizes restoration strategies by the individual reaches identified in the Renton Shoreline Master Program Inventory and Characterization and shown in Map 1.

Table 4-2. Shoreline Restoration Strategies by Reach

Shoreline Reach	Location	Restoration Objectives
Black River Reach A	The Black River/Springbrook to Grady Way	<p>There are opportunities to provide native vegetation buffers at such time as private property downstream of Monster Road redevelops.</p> <p>Vegetation preservation and enhancement should be encouraged in areas of railroad right of way not devoted to transportation uses. Expansion of railroad facilities may require specific vegetation preservation and enhancement programs.</p> <p>The retrofitting or reconstruction of the Black River Pump Station to improve fish passage is a long term goal identified in the WRIA 9 Habitat-limiting Factors and Reconnaissance Report but is likely to be very expensive.</p> <p>The WRIA 9 Salmon Habitat Plan Project LG 18 calls for rehabilitation of riparian areas in the Black River Marsh by and removing fill from the left bank of the Black River confluence just west of the railroad tracks. Other strategies include creating new off-channel habitats and/or placement of LWD along banks.</p>
Black/Springbrook B	From Grady Way to SW 16 th Street	<p>This section of the stream is bridged by Grady Way and I-405.</p> <p>Improvements to the stream channel and riparian vegetation should be implemented in conjunction with road improvement and maintenance programs.</p>
Springbrook D	From SW 16th Street to City Limits.	<p>Vegetation enhancement should be implemented within the drainage district channels in conjunction with management plans including adjustments to channel dimensions to assure continued flood capacity with the additional hydraulic roughness provided by vegetation. Vegetation management should retain a continuous trail system that may be relocated further from the stream edge.</p> <p>When adjacent land redeveloped vegetated buffers should be provided that will integrate with re-vegetation of the stream channel.</p> <p>Additional plans should be pursued for wetland rehabilitation including relocating existing flood control levees to be outside of adjacent wetlands to allow more natural floodplain characteristics.</p> <p>The WRIA 9 Salmon Habitat Plan Project calls for rehabilitation of areas for rearing and off-channel refuge on Springbrook Creek including riparian plantings, LWD, pool construction, channel branch excavation and, where appropriate, modification to create a 2-stage (low- and high-flow) channel.</p>
Lake Desire		<p>For the entire lake, implement phosphorus controls including phosphorus treatment from new development runoff, lake aeration and encouraging replacement of ornamental vegetation with native vegetation requiring less fertilizer and therefore producing less phosphorus in runoff.</p>
Lake Desire A	17408 West Lake Desire Dr. SE to 18228 West Lake Desire Dr. SE	<p>This developed primarily single-family area provides primarily lawn and ornamental vegetation at the shoreline. Opportunities for restoration to limit or reverse ongoing adverse impacts shall through providing for native vegetation in buffers adjacent to the water may be implemented as individual properties redevelop based on the standards related to lot depth together with replacement of shoreline armoring with soft shoreline</p>

Table 4-2. Shoreline Restoration Strategies by Reach (continued)

Shoreline Reach	Location	Restoration Objectives
		protection incorporating vegetation. Educational programs to encourage voluntary replacement of ornamental vegetation with native vegetation and to replace or upgrade docks and other over-water structures has a roughly equal or better chance of affecting change as do regulatory approaches. There is no public land in this reach and little opportunity for public enhancement projects. Shoreline vegetation enhancement should take place at the WDFW boat launching site balancing values of riparian vegetation with public access.
Lake Desire B	18228 West Lake Desire Dr. SE to the Natural Area at the south end of the Lake	Same as Reach A.
Lake Desire C	Natural Area at the south end of the Lake	Existing shoreline vegetation in this publicly owned natural area should be preserved with some accommodation for interpretive access to the water s as part of park management plans, subject to the primary objective of protecting ecological functions.
Lake Desire D	From the Natural Area to 17346 West Lake Desire Dr. SE	Same as reach A for developed single family lots. For the Urban Conservancy area at the top of the lake, private lots should be targeted for acquisition and preservation.

5. PROJECT IMPLEMENTATION AND MONITORING

As noted in the Shoreline Inventory section of this report, the City's shoreline area is occupied by industrial, commercial, multi- and single-family residences, and parks/recreation/open space areas. To ensure that restoration goals are being achieved, it is important for the City to evaluate the effectiveness of this plan and to adapt to changing conditions. Under WAC 173-26- 201(2)(f)(vi), the development of a jurisdiction's SMP must, "Provide for mechanisms or strategies to ensure that restoration projects and programs will be implemented...in meeting the overall restoration goals." To remain consistent with restoration framework and guidance for SMP development, project implementation and monitoring will survey available funding sources, project timelines and benchmarks, and document progress of restoration projects.

5.1 FUNDING OPPORTUNITIES

Achievements of present restoration projects and restoration planning processes are made evident through existing partnerships with agencies and organizations. Restoration efforts are implemented because local citizens, non-governmental organizations, tribes, the City, state, and federal resource agencies form partnerships to collaborate and problem solve, sharing the responsibility of each project. For projects near or within City-limits, the greatest likelihood of funding would result from continued participation in the WRIA 8 and 9 forums as well as partnering with King County and state and federal agencies. A list of potential funding sources can be found in Table 5-1 below.

Table 5-1. Funding Opportunities

Organization	Grant/Funding Information
U.S. Army Corps of Engineers Basinwide Restoration New Starts General Investigation Bruce Sexauer P.O. Box 3755 Seattle, WA 98134 (206) 764-6959	Cost-share assistance for fish and wildlife projects, flood management, general restoration of riparian areas. Chief funder of the Green-Duwamish Ecosystem Restoration Project
US Fish & Wildlife Service Nell Fuller 911 NE 11th Avenue Portland, OR 97232 (503) 231-2014 Nell_Fuller@fws.gov	Funds and assists in the North American Wetlands Conservation Act Grants Program and several fish passage programs including a barrier culvert removal or replacement program.
Environmental Protection Agency Region 10: Pacific Northwest Grant Administration Unit Bob Philips Philips.bob@epa.gov	Funds projects ranging from protecting the natural environment, including wetlands, restoration, and stewardship work related to Section 404 of the Clean Water Act.
Washington State Department of Ecology www.ecy.wa.gov/programs/wq/plants/grants/index.htm	Funding sources including low-interest loans and grants for improving Washington state water quality as well as prevention and control of non-native aquatic plants.
Washington Department of Fish and Wildlife http://wdfw.wa.gov/volunter/vol-7.htm	Grants for financial assistance for private landowners taking action to restore habitat and help preserve threatened species. Local stewardship programs which participate in repairing fish and wildlife habitat.
Salmon Recovery Funding Board (SRFB) http://www.rco.wa.gov/	Grants from the Salmon Recovery Funding Board range from \$10,000 to \$900,000 in years past for organizations in 28 counties. In 2008, two WRIA 8 projects including Lower Cedar River Acquisition received \$481,507 in grant funding and three WRIA 9 projects received \$363,725.
King County Flood Control District http://www.kingcountyfloodcontrol.org	Current plans to spend \$335 million to implement 2006 Flood Hazard Management. Plans for levee setback and removal for Cedar and Green River, flood buyouts in progress for Cedar floodplain areas.
King Conservation District http://www.kingcd.org/pro_gra.htm	WRIA 8 Steering Committee allocates roughly \$1.3 million in KCD Grants annually since 2006. 67% or \$890,000 of the annual budget in 2007 going to Site-Specific restoration and protection projects along lower and middle Cedar River reaches. WRIA 9 Forum receives \$634,000 in KCD funds annually to support habitat protection and restoration projects identified in the watershed Habitat plan and Strategic Assessment.
King County Dept of Natural Resources and Parks Ken Pritchard Grant Exchange Coordinator (206) 296-8265 ken.pritchard@kingcounty.gov	King County Water Quality Grant Fund. Grants of up to \$60,000 are available for restoration and protection of watersheds, streams, rivers, lakes, and tidewater.
Community Salmon Fund est. by National Fish & Wildlife Foundation (NFWF) and Salmon Recovery Funding Board (SRFB)	Habitat protection and restoration project grants of up to \$75,000 consistent with local salmon habitat plans. The program focuses on smaller community based restoration projects to support salmon recovery on private property in cooperation with businesses and landowners. Grants

Table 5-1. Funding Opportunities (continued)

Organization	Grant/Funding Information
	requests in the \$10,000-\$20,000 range are strongly encouraged.
Ducks Unlimited Matching Aid to Restore Habitat (MARSH) (916) 852-2000 conserve@ducks.org	Matching funds for habitat restoration and enhancement projects, helps develop and preserve waterfowl habitat.

5.2 BENCHMARKS AND MONITORING

As a long-range policy plan, the SMP guidelines include the goal that local master programs “...include planning elements that, when implemented, serve to improve the overall condition of habitat and resources within the shoreline area” (WAC 173-26-201(c)). To establish the SMP benchmark for implementation effectiveness, the legislature provided a timeframe for jurisdiction amendments to the SMP. In 2003, Substitute Senate Bill 6012 amended the Shoreline Management Act (RCW 90.58.080) to establish an amendment schedule requiring that “Local governments shall conduct a review of their master programs at least once every seven years after the applicable dates... [and] if necessary, revise their master programs (RCW 90.58.080 (4)).”

The 7-year period starts once the City of Renton amends its SMP on or before December 1, 2009 (RCW 90.58.080 (4)(II)). While the review period is taking place, an ongoing assessment of project successes and limitations must still occur as restoration projects are planned and implemented within the City. A restoration framework developed in part by Palmer et al (2005) provides several tasks for assessing restoration actions and revising the planning process to meet restoration goals. The following actions include:

- Adaptively manage restoration projects;
- Summarize restoration progress including grant applications and funds secured;
- Monitor post-restoration conditions;
- Revise the planning process to reflect changes in objectives and policy re-evaluation; and
- Use monitoring and maintenance results to inform future restoration activities.

To document progress toward restoration goals regionally within WRIAs 8 and 9 and locally within the City, annual assessments should occur to determine how well restoration criteria are met and how effectively the goals of this restoration plan are achieved. Although implementation may be resource- and time-intensive, its overall impact is significant due to the potential amount of affected shorelines. With grant aid available to projects of various scales, the improvement of ecological function outweighs the direct cost of shoreline protection or restoration, making it increasingly feasible to carry out implementation.

6. CONCLUSIONS

As part of the Shoreline Master Program update process, the purpose of the Restoration Plan is to help improve shoreline function over time (WAC 173-26-201(2)(f)). This restoration plan gives the City of Renton a framework with which to pursue ecosystem functioning within both the Green/Duwamish River and Lake Washington/Cedar River Watersheds. In time, restoration actions outlined in this document will be implemented and results under the guise of the City's Restoration Plan within the Shoreline Master Program will be under way.

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